

CLAIMS

1. A surgical access device adapted for disposition relative to an incision in a patient, the access device facilitating insertion of a surgical instrument having a diameter up to about 37 mm through the access device and maintenance of a sealing relationship with said surgical instrument, comprising:  
5       a valve structure including a gel material and an access channel;  
          the access channel including a protective sleeve extending into communication with the incision in the patient; and  
          the gel material including an elastomer.
2. The surgical access device of Claim 1, wherein the elastomer includes a silicone.
3. The surgical access device of Claim 1, wherein the elastomer includes a urethane.
4. The surgical access device of Claim 3, further comprising a foaming agent forming with the urethane a foam gel.
5. The surgical access device of Claim 1, wherein the gel material includes at least one of a urethane, polyvinylchloride, Isoprene, Kraton, an oil, and a foaming agent.

6. The surgical access device of Claim 1, wherein the elastomer includes a base and an oil forming with the base an elastomeric oil mixture.

7. The surgical access device of Claim 6, wherein the oil includes at least one of a vegetable oil, a petroleum oil, and a silicone oil.

8. The surgical access device of Claim 1, wherein the valve structure further comprises a cap ring which may be inserted or molded with the gel material.

9. The surgical access device of Claim 8, wherein the protective sleeve is bonded or molded around an inner diameter of the cap ring.

10. The surgical access device of Claim 9, wherein the protective sleeve provides for wound protection during insertion and withdrawal of an instrument.

11. The surgical access device of Claim 1, further comprising:  
at least one support ring disposed circumferentially of the valve structure forming a hollow space; and  
a wound retractor operatively placed in the hollow space.

12. The surgical access device of Claim 11, wherein the wound retractor includes an inner ring, an outer ring, and a flexible sleeve connecting the inner ring and the outer ring.

13. The surgical access device of Claim 9, wherein the protective sleeve is a single tubular member.

14. The surgical access device of Claim 9, wherein the protective sleeve comprises a plurality of axially extending sleeve members having a plurality of axial slits.

15. The surgical access device of Claim 9, wherein the protective sleeve and the cap ring comprise of the same materials.

16. The surgical access device of Claim 9, wherein the protective sleeve and the cap ring comprise of different materials.

17. A surgical access device facilitating a sealing relationship with an instrument extending through the device and into an incision in a body wall of a patient, the access device comprising:

a valve structure disposed relative to the incision in a sealing relationship with the body wall around the incision and extending into communication with the incision in the patient;

a valve included in the valve structure and disposed relative to the incision  
5 in the body wall;

the valve having a first state in the absence of an instrument extending through the valve structure, and a second state in the presence of an instrument extending through the valve structure;

the valve in the first state forming a zero seal in the absence of the  
10 instrument extending through the valve structure; and

the valve in the second state forming a seal with the instrument in the presence of the instrument extending through the access device.

18. The surgical access device of Claim 17, wherein the valve structure further comprises a cap ring inserted or molded with the valve.

19. The surgical access device of Claim 18, wherein the valve structure further comprises a protective sleeve bonded or molded around an inner diameter of the cap ring.

20. The surgical access device of Claim 19, wherein the protective sleeve provides for wound protection during insertion and withdrawal of the instrument.

21. The surgical access device of Claim 18, further comprising:  
at least one support ring disposed circumferentially of the valve structure  
forming a hollow space; and  
a wound retractor operatively placed in the hollow space.

22. The surgical access device of Claim 21, wherein the wound retractor  
includes an inner ring, an outer ring, and a flexible sleeve connecting the inner  
ring and the outer ring.

23. The surgical access device of Claim 19, wherein the protective sleeve  
is a single tubular member.

24. The surgical access device of Claim 19, wherein the protective sleeve  
comprises a plurality of axially extending sleeve members having a plurality of  
axial slits.

25. A medical access device, including:  
a valve structure having an elongate configuration;  
at least one wall defining with the valve structure a working channel sized  
and configured to receive a surgical instrument; and  
5 a gel disposed in the working channel and being adapted to form a seal  
with any instrument having a diameter up to about 37 mm disposed in the  
working channel.

26. The medical access device of Claim 25, wherein the valve structure comprises a gel cap and an abdominal base.

27. The medical access device of Claim 26, wherein the gel cap further comprises a gel pad, a circumferential cap ring, and a protective sleeve bonded or molded around an inner diameter of the cap ring.

28. The medical access device of Claim 27, wherein the protective sleeve is a single tubular member.

29. The medical access device of Claim 27, wherein the protective sleeve comprises a plurality of axially extending sleeve members having a plurality of axial slits.

30. The medical access device of Claim 27, wherein the cap ring has an annular void on an inner circumference to form a sealing relationship with the abdominal base.

31. The medical access device of Claim 30, wherein the abdominal base comprises a rounded end surface along its inner diameter to secure an inner ring of a wound retractor.

32. The medical access device of Claim 30, wherein the abdominal base comprises a plurality of toggles along its inner diameter to create a seal with the cap or to release the base from the cap.

33. The medical access device of Claim 30, wherein the abdominal base comprises a plurality of latches along its inner diameter to create a seal with the cap or to release the base from the cap.

34. The medical access device of Claim 30, wherein the abdominal base comprises a mating means along its inner diameter to create a seal with the cap or to release the base from the cap.

35. The medical access device of Claim 30, wherein the abdominal base comprises a raised wall along its inner diameter to fit a corresponding cap ring.